AMENDMENTS TO THE SPECIFICATION:

Page 1, please add the following new paragraphs before paragraph [0001]:

[0000.2] CROSS-REFERENCE TO RELATED APPLICATIONS

[0000.4] This application is a 35 USC 371 application of PCT/DE 03/02173 filed on June 30, 2003.

[0000.6] BACKGROUND OF THE INVENTION

Please replace paragraph [0002] with the following amended paragraph:

[0002] Both pressure-controlled and stroke-controlled injection systems are known and can be used to supply combustion chambers of self-igniting internal combustion engines. Besides unit fuel injectors and pump-line units, reservoir injection systems (common rails) are also used. Common rails advantageously make it possible to adapt the injection pressure to the load and rpm of the engine. To achieve high specific outputs and to reduce emissions, the highest possible injection pressure is generally required.

Please replace paragraph [0003] with the following amended paragraph:

[0003] ~~**Background of the Invention**~~ Description of the Prior Art

Please replace paragraph [0004] with the following amended paragraph:

[0004] German Patent Disclosure DE 199 10 970 A1 relates to a fuel injection system~~. It has~~ having a pressure boosting unit which is disposed between a pressure reservoir and a nozzle chamber and whose pressure chamber communicates with the nozzle chamber via a pressure line. A bypass line connected to the pressure reservoir ~~is also provided. The bypass line~~ communicates directly with the pressure line~~. The bypass line~~ can be used for a pressurized injection. The bypass line ~~and~~ is disposed parallel to the pressure chamber, so that ~~the bypass line~~ it is passable regardless of the motion and position of a displaceable pressure fluid in the pressure boosting unit. With this embodiment, the flexibility of the injection is

enhanced. In this embodiment, the triggering of the pressure boosting unit is done via a pressure relief of the differential pressure chamber of the pressure boosting unit.

Page 3, please replace paragraph [0009] with the following amended paragraph:

[0009] ~~Summary of the Invention~~ SUMMARY OF THE INVENTION

Page 4, please replace paragraph [0011] with the following amended paragraph:

[0011] The filter element, which is required to filter out the tiniest contamination particles that can get into the fuel injection system, for instance when its individual components are assembled, is directly accommodated in a branch off the high-pressure line that acts upon a work chamber of the pressure booster, or in a branch off the work chamber. In the branch that receives the filter element, the volumetric flow of fuel is considerably less. The long duration of the injection pause between injections is available here, in which the fuel quantity for filling the pressure chambers flows through the filter element upon restoration of the pressure booster. In the supply stroke of the pressure booster, no fuel has to flow via the filter element. Conversely, the work chamber of the pressure booster is acted upon by unfiltered fuel, which is at high pressure, and this is done without throttling by a filter element.

Please replace paragraph [0012] with the following amended paragraph:

[0012] In a first variant embodiment, the filter element can be ~~made to be~~ located upstream of flow connections by way of which a differential pressure chamber of the pressure booster and its high-pressure chamber are re-filled with fuel in the restoration phase of a boosting element received in the pressure booster and configured in pistonlike fashion. This assures that the fuel, compressed ~~by a~~ in accordance with the boosting ratio of the pressure booster, that flows out into the fuel injector is free of contaminants, so that all the vulnerable throttles,

valve cross sections, and in particular the valve seats are protected. This applies to all the regions of the fuel injector located downstream of the pressure booster.

Page 5, please replace paragraph [0014] with the following amended paragraph:

[0014] The filter element for filtering out contaminants from the fuel is accommodated in flow lines, which in comparison to the high-pressure lines that act upon the work chamber of the pressure booster carry considerably lesser volumetric flows of fuel , preferably from about one fifth (1/5) to about one twentieth (1/20) of the total flow. The fuel quantity that is needed to refill the differential pressure chamber and the high-pressure chamber of the pressure booster flows via the filter element, during the pause between injections, which is long in comparison to the injection phase itself. A smaller volumetric flow therefore occurs here than in the supply line to the work chamber during the injection phase. During the injection, no fuel flow via the filter element is necessary.

Page 6, please replace paragraph [0016] with the following amended paragraph:

[0016] ~~Drawing~~ BRIEF DESCRIPTION OF THE DRAWINGS

Please replace paragraph [0017] with the following amended paragraph:

[0017] The invention will be described in further detail below in conjunction with the ~~drawing.~~ drawings, in which:

Please delete paragraph [0018].

Please replace paragraph [0019] with the following amended paragraph:

[0019] Fig. 1[[,]] is a schematic view, partly in section, of one exemplary embodiment of a disposition of the filter element, upstream of flow connections that serve to refill pressure chambers of a pressure booster;

Page 7, please replace paragraph [0020] with the following amended paragraph:

[0020] Fig. 2[[,]] is a further exemplary embodiment[[,]] in which a filter element, located outside a high-pressure line, is upstream of a switching valve that actuates the pressure booster; and

Please replace paragraph [0021] with the following amended paragraph:

[0021] Fig. 3[[,]] shows a filter element integrated into a pressure booster piston of the pressure booster.

Please replace paragraph [0022] with the following amended paragraph:

[0022] ~~Variant Embodiments~~ DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please delete paragraph [0023].

Please replace paragraph [0024] with the following amended paragraph:

[0024] Fig. 1 shows the illustration of an exemplary embodiment in which a filter element is upstream of the filling lines of pressure chambers of a pressure booster. From this ~~the~~ illustration, ~~in Fig. 1,~~ a fuel injection system 1 can be seen, which is acted upon, via a high-pressure source, not shown in Fig. 1, with fuel that is at high pressure. The high-pressure source ~~not shown in the drawing~~ is connected to a high-pressure connection 2 of a high-pressure line 3 and acts directly upon a work chamber 15 of a pressure booster 13, without throttling.

Page 9, please replace paragraph [0029] with the following amended paragraph:

[0029] An inlet or outlet 22, through which the flow can be in the inflow direction or the outflow direction - relative to a fuel injector ~~20~~ 26 - extends from the high-pressure chamber 17 of the pressure booster 13. The inlet or outlet 22 changes over into a high-pressure line 25~~, identified by reference numeral 25,~~ with which the fuel, brought to an elevated pressure

level in accordance with the dimensioning of the pressure booster 13, is delivered to the fuel injector 26.

Page 11, please replace paragraph [0032] with the following amended paragraph:

[0032] Via the fuel source, not shown in Fig. 1, communicating at the high-pressure connection 2 with the high-pressure line 3, the fuel is present without throttling by a filter element in the work chamber 15 of the pressure booster 13. The spring 18 integrated with the differential pressure chamber 16 of the pressure booster 13 tends to keep ~~keeps~~ the pistonlike boosting element 14 in its position of repose. The pressure booster 13 is activated by opening of the switching valve 21. When the differential pressure chamber relief line 19 is made to communicate with the low-pressure-side return 24, fuel flows out of the differential pressure chamber 16 of the pressure booster 13. Because of the high pressure prevailing in the work chamber 15, the pistonlike boosting element 14 moves into the high-pressure chamber 17. Because of the pistonlike boosting element 14, in accordance with the design of the pressure booster 13, an increased fuel pressure results in the high-pressure chamber 17, and this fuel pressure is delivered via the inlet or outlet 22, as applicable, to the fuel injector 26 or its control chamber 29 and its nozzle chamber 37. During the injection event, the fuel flows unthrottled, without filtering, via the high-pressure line 3 to the work chamber 15 of the pressure booster 13. The fuel compressed in the high-pressure chamber 17 of the pressure booster 13 is injected. After the termination of the injection event, a restoring motion of the pistonlike boosting element 14 into its position of repose is effected, because of the actuation of the switching valve 21 and by means of the spring 18 that is let into the differential pressure chamber 16. During the injection event, the check valve 11 disposed in the first flow conduit 10 prevents fuel, which is at elevated pressure, from flowing back into the line

portion 4, containing the filter element 5, that branches off from the high-pressure line 3. During the restoring motion of the pistonlike boosting element 14, fuel flows into the high-pressure chamber 17 of the pressure booster 13 to replenish it, via the first flow conduit 10 that is downstream of the filter element 5. Simultaneously, via the second flow conduit 20 containing the filling valve 6 and via the third flow conduit 23, containing the throttle restriction 12 and connected parallel to the second flow conduit 20, fuel filtered by the filter element 5 in the line portion 4 flows into the differential pressure chamber 16 of the pressure booster 13 to replenish it. Thus all the components of the fuel injector located downstream of the pressure booster 13, and in particular both the inlet throttle 30 and the outlet throttle 31, as well as the nozzle chamber 37 in the injector body 27 and the injection openings 39 on the end of the fuel injector 26 toward the combustion chamber are acted upon only by filtered fuel.

Page 12, please replace paragraph [0034] with the following amended paragraph:

[0034] In the variant embodiment shown in Fig. 2, the high-pressure line 3 is acted upon by fuel at high pressure from a high-pressure reservoir 43 (common rail). The fuel at high pressure enters the high-pressure line 3 at the high-pressure connection 2 and flows, unthrottled, via the high-pressure line to the work chamber 15 of the pressure booster 13. A larger volumetric flow of fuel flows in the high-pressure line 3 from the common rail 43 to the work chamber 15, compared to the volumetric flow of fuel that passes through the line portion 4 that receives the filter element 5. In the exemplary embodiment of Fig. 2, the line portion 4 acts as the supply line to the switching valve 21 that activates the pressure booster 13. The switching valve 21 includes a connection to the low-pressure-side return 24 on one side and an overflow line 42 on the other; as indicated by the double arrows in Fig. 2, fuel can

flow through the overflow line in both directions, depending on the switching position of the switching valve 21. In the view shown in Fig. 2, the pistonlike boosting element 14 of the pressure booster 13 is embodied in two parts. Via the overflow line 42, the differential pressure chamber 16 of the pressure booster 13 is acted upon by fuel at high pressure. The spring element 18 is let into the differential pressure chamber 16 of the pressure booster 13 and keeps the pistonlike boosting element 14~~, embodied here in two parts,~~ in its position of repose. The pistonlike boosting element 14~~, embodied in two parts,~~ acts with its end face remote from the work chamber 15 upon the high-pressure chamber 17. From the high-pressure chamber 17 of the pressure booster 13, the high-pressure line 25 extends to the nozzle chamber 37 and discharges into it at the orifice 41. In addition, the high-pressure chamber 17 of the pressure booster 13 is in communication with a filling line 44, via a refilling branch 45. Via the filling line 44, the differential pressure chamber 16 of the pressure booster 13 and the control chamber 29 of the fuel injector 26 communicate fluidically with one another. Unlike the exemplary embodiment of Fig. 1, the spring element 35 is let into the control chamber 29 of the fuel injector 26 as shown in Fig. 2, the spring element is braced on a boundary face of the control chamber 29 and acts on the end face 36 of the injection valve member 28, which can be embodied as a nozzle needle. The inlet throttle 30 is integrated with the filling line 44, while the refilling branch, which connects the high-pressure chamber 17 with the filling line 44, contains both the outlet throttle 31, for pressure relief of the control chamber 29, and a check valve serving to fill the high-pressure chamber 17.

Page 14, please replace paragraph [0036] with the following amended paragraph:

[0036] With the exemplary embodiment shown in Fig. 2, throttling losses during injection can be avoided, and thus extremely high pressures can be achieved in injection, since from the high-pressure reservoir 43, fuel flows unthrottled into the work chamber 15 of the pressure booster 13 via the high-pressure line 3. The volumetric flow of fuel in the high-pressure line during the injection of fuel through the fuel injector 26 is considerably higher than that which passes through the line portion 4, containing the filter element 5, that acts as a supply line to the switching valve 21. Because of the disposition of the filter element 5, which is upstream of the switching valve 21 in the second exemplary embodiment ~~2~~, all the parts of the pressure booster 13 - except for the work chamber 15 - downstream of the switching valve 21 are acted upon by fuel filtered via the filter element 5. In particular the control valve 21, which can have sealing seats and, in a servo-hydraulic version, small throttles with extremely small throttling cross sections, are protected against contaminants by the disposition according to the invention of the filter element 5 in a line - such as the supply line 4 - that carries a lesser volumetric flow of fuel.

Page 15, please replace paragraph [0037] with the following amended paragraph:

[0037] The ~~state of the~~ fuel injection system 1 shown in Fig. 2 ~~shows~~ is shown in its deactivated state. Via the switching valve 21, switched into its position of repose, fuel flows via the line portion 4, acting as a supply line to the switching valve 21 and containing the filter element 5, via the overflow line 42 into the differential pressure chamber 16 of the pressure booster 13. Simultaneously, its work chamber 15 is acted upon by the unthrottled fuel stream passing through the high-pressure line 3. Via the spring 18 disposed in the differential pressure chamber 16 of the pressure booster 13, the pistonlike boosting element

14, which divides the work chamber 15 from the differential pressure chamber 16, is kept in its position of repose. Via the filling line 44, the pressure level prevailing in the differential pressure chamber 16 of the pressure booster 13 also prevails in the control chamber 29 of the fuel injector 26. Filtered fuel flows to ~~it~~ chamber 29 via the inlet throttle 30. A refilling branch 45, which contains the check valve 11, branches off from the filling line 44. By means of the refilling branch, the high-pressure chamber 17 is acted upon by filtered fuel that has been cleaned of contaminants. Via the high-pressure line 25 that branches off from the high-pressure chamber 17, the pressure level prevailing in the high-pressure reservoir 43 prevails in the nozzle chamber 37 of the fuel injector 26 as well.

Page 16, please replace paragraph [0038] with the following amended paragraph:

[0038] An actuation of the pressure booster 13 is effected by switching the switching valve 21 into its activated position, or in other words upon communication of the overflow line 42 with the low-pressure-side return 24. As a result, the control volume contained in the differential pressure chamber 16 of the pressure booster 13 flows away in the direction of the low-pressure-side return 24. Because of the high pressure prevailing in the work chamber 15, the pistonlike boosting element 14, embodied in two parts as shown in Fig. 2, moves with its lower face end into the high- pressure chamber 17. As a result, fuel flows from the high-pressure chamber 17 at an elevated pressure level to the nozzle chamber 37 via the high-pressure line 25, while via the filling line 44, fuel is positively displaced out of the control chamber 29 of the fuel injector. Because of the pressure level, boosted in accordance with the design of the pressure booster 13, that prevails in the high-pressure chamber 17, the hydraulic area of the pressure shoulder 38 on the injection valve 28 becomes operative there, so that with its face end 36, the injection valve 28 moves into the control chamber 29, and the fuel is

injected into the combustion chamber 40 of the engine via the opened injection openings ~~29~~ 39.

Page 18, please replace paragraph [0041] with the following amended paragraph:

[0041] Unlike the variant embodiment of Fig. 1, in the embodiment of Fig. 2 the triggering of the fuel injection system 1 is done with a switching valve 21. Because of the disposition of the filter element 5 in the line portion 4, acting as a supply line, to the switching valve 21, it is assured that the switching valve 21 and all the components of the pressure booster 13 ~~3~~ located downstream of the switching valve 21 - with the exception of the work chamber 15 - as well as the components of the fuel injector 26 are acted upon by filtered fuel. The disposition of the filter element 5 in a line portion 4, which carries a lesser fuel volume than the volumetric flow of fuel which flows through the high-pressure line 3 acting on the work chamber 15 of the pressure booster 13 during the injection, assures that no throttling losses occur at the filter element 5 during the injection. The volumetric flow of fuel for refilling the pressure chambers 16 and 17 of the pressure booster 13 can be considered slight, with respect to the volumetric flow that passes through the high-pressure line 3 to the work chamber 15 of the pressure booster 13. This volumetric flow required to refill chambers 16, 17 may be within the range of about one fifth (1/5) to about one twentieth (1/20) of the total flow through conduit 3.

Page 19, please replace paragraph [0043] with the following amended paragraph:

[0043] As an alternative to the disposition of the filter element 5 of the check valve 11, the throttle restriction 12, and the filling valve 6, all located outside the pressure booster 13 in Fig. 1, these components and their flow connections, that is, the flow conduits 10, 20 and 23,

may also be received inside the pistonlike boosting element 14 of the pressure booster 13. This makes an especially space- saving embodiment of the fuel injection system possible. In the variant embodiment shown in Fig. 3, the pressure booster 13 of the fuel injection system 1 includes a pistonlike boosting element 14 in which both the filter element 5 and downstream of it in the first flow conduit 10 the filling valve 6 and in the third flow conduit the throttle restriction 12 are connected ~~downstream~~. Via the throttle restriction 12 integrated with the third flow conduit 23, an imposition of pressure of a filling of the differential pressure chamber 16 of the pressure booster 13 is effected. The filling valve ~~5~~ 6downstream of the filter element 5 is in communication, via a branch 47, with the differential pressure chamber 16 of the pressure booster 13. A through conduit 46, in which the check valve 11 is received, extends below the filling valve 6. The through conduit 46 discharges at the lower face end, defining the high-pressure chamber 17, of the pistonlike boosting element 14. An actuation of the pressure booster 13 is effected by means of a pressure relief of the differential pressure chamber 16 of the pressure booster 13, by triggering the switching valve 21 into an open position, so that the fuel contained in the differential pressure chamber 16 flows out into the low-pressure-side return 24.

Page 21, please replace paragraph [0045] with the following amended paragraph:

[0045] If conversely the switching valve 21 that connects the differential pressure chamber 16 with the low-pressure-side return 24 is actuated into its closing position in Fig. 3, refilling of the differential pressure chamber 16 of the pressure booster 13 is effected via the flow conduits 10 and 23, downstream of the filter element 5, in which flow conduits the filling valve 6 and the throttle restriction 12, respectively, are integrated. The refilling of the differential pressure chamber 16 is effected parallel via the third flow conduit 23 with the

throttle restriction 12 and via the branch 47 from the filling valve 6 that discharges into the differential pressure ~~work~~ chamber 15 ~~16~~. Simultaneously, the high-pressure chamber 17 is filled via the check valve 11, which upon an upward motion of the pistonlike boosting element 14 - reinforced by the restoring spring 18 received in the differential pressure chamber 16 - fuel flows via the through conduit 46 into the high-pressure chamber 46 to refill it.

Page 22, please add the following new paragraph after paragraph [0045]:

[0046] The foregoing relates to a preferred exemplary embodiment of the invention, it being understood that other variants and embodiments thereof are possible within the spirit and scope of the invention, the latter being defined by the appended claims.

Please delete pages 23 and 24.